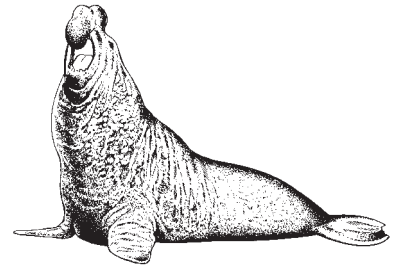




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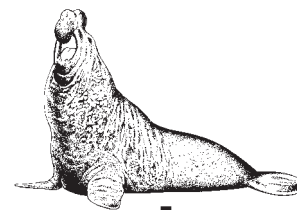


Discovering Northern Elephant Seals

Post-Visit Activities

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What Can We Learn From Our Field Journals?



Students review their field journals to bridge what they have learned prior to their visit and what they have experienced at Point Reyes.

Time required: 2 hours

Location: classroom

Suggested group size: entire class

Subject(s): science, language arts, math

Concept(s) covered: science, math

Written by: Christie Denzel Anastasia, National Park Service

Last updated: 12/03/00

Post-Visit **Lesson Plan**

Student Outcomes

At the end of this activity, the students will be able to:

- Draw conclusions based about elephant seals and their habitat from first-hand observation.
- Understand how scientists begin to process field observations.
- Contemplate future career choices

California Science Standard Links (grades 6–8)

This activity is linked to the California Science Standards in the following areas:

- 6th grade
 - 5a- food webs
 - 5b- organisms and the physical environment
 - 5e- the number and types of organisms an ecosystem can support dependson the resources available and abiotic factors
 - 7d- communicate the steps and results from an investigation
 - 7e- recognize whether evidence is consistent with a proposed explanation
 - 7f- interpret a simple scale map
 - 7h- identify changes in natural phenomena over time
- 7th grade
 - 7c- communicate the logical connection among hypothesis, science concepts, tests conducted, data collected, and conclusions drawn from scientific evidence.
- 8th grade
 - 9b- evaluate the accuracy and reproducibility of data

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National Science Standard Links (grades 5 – 8)

This activity is linked to the National Science Standards in the following areas:

- Content Standard A – Use appropriate tools and techniques to gather, analyze, and interpret data; think critically and logically to make the relationship between evidence and explanations; recognize and analyze alternative explanations and predictions; communicate scientific procedures and explanations; use mathematics in all aspects of scientific inquiry; understandings about science and technology.
- Content Standard C – Populations and ecosystems

Materials

To be provided by the teacher:

- **Pre- and Post-evaluation** activity sheets (see Procedure 11 in this lesson)

Vocabulary

Review unit vocabulary list

Procedures

1. Field Journal review

Students should have their field journals on their desks to answer and think about the following processing questions for each journal sheet. The goal is for students to notice patterns, relate the elephant seal to its' habitat, and compare/contrast the two locations.

2. Elephant Seal Overlook and Lifeboat Station Observation Sheets

- What do students notice about the arrangement of elephant seals on the beach?
- Does their arrangement have anything to do with weather, tides, or landscape?
- Were any students able to identify an alpha male?

3. Field Census for both locations

- What were the total numbers of elephant seals at each location?
- How did numbers of the different classes (such as male/female) compare at both locations?
- What was the most difficult part about telling the different types of elephant seals apart?
- What visitor activities did you notice?
- Were visitors respectful of the rules/regulations of the Marine Mammal Protection Act?

4. Behavior Survey for both locations

- What activities did males engage in most?
- What activities did females engage in most?
- Did activities vary significantly between the two sites?
- What do these behaviors tell you about the time of your visit and the timing of the elephant seal life cycle?



4. Behavior Survey for both locations

- What activities did males engage in most?
- What activities did females engage in most?
- Did activities vary significantly between the two sites?
- What do these behaviors tell you about the time of your visit and the timing of the elephant seal life cycle?

5. Behavior Field Notes for both locations

Ask students if they would like to share an interesting observation from either location. Why do they think the elephant seal was performing that particular behavior?

6. Habitat Survey for both locations

Using the blackboard, create two lists: one list should detail what makes a suitable habitat for elephant seals, and the other should detail what makes a habitat less suitable for elephant seals. Compare and contrast the Elephant Seal Overlook to the Lifeboat Station.

7. Scar Card

- What were some of the marks that students were able to notice and draw? Were there any shark bites or scars?
- Are all of the marks permanent, or will they change with time?
- Why would scientists record this type of information? (to monitor locations of individuals annually)

8. Tagging and Marking of Pinnipeds

- Did anyone notice tags or marks on any of the pinnipeds in the area?
- Were any of the numbers on the tags legible? If so, please report to Resource Management at Point Reyes National Seashore.

9. Other Marine Species Sighting Log

- What other species were sighted on the day of your visit?
- How do these other organisms relate to elephant seals?

10. Wrap-up

- What questions do students have about elephant seals that haven't been answered yet? Develop a list of questions and encourage students to continue further research.
- What types of careers are available if you want to do this type of work when you finish high school/college?
- What type of training or education would you need?

11. Pre- and Post-evaluation

If you saved the **Pre- and Post- evaluation** activity sheets from the first pre-visit lesson, redistribute them to the original students. Explain that students may change their answers based on what they have learned in class and on their field trip. If you choose this option, have students write in a different color pen or pencil with the date written in that color.

If you did not choose to save the original activity sheets, make copies for each student of the **Pre- and Post-evaluation** (located in the first pre-visit activity: "How Can I Learn About the Secret Lives of Elephant Seals?"). We would like



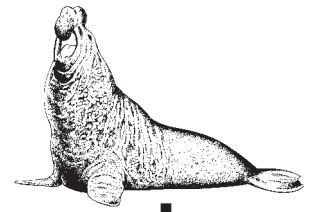
to see the results of these evaluations! Please consider mailing completed **Pre- and Post- evaluation** activity sheets back to Point Reyes National Seashore. We would like to measure the success of your use of this curriculum in changing knowledge, skills, and abilities.

Mail to: National Park Service
Point Reyes National Seashore
attn: Education Specialist
Point Reyes Station, CA 94956

Extension ideas

1. Exchange and compare information with other school groups who visited Point Reyes National Seashore for an Elephant Seal field trip. This may be possible through email, electronic bulletin board, or newsletter exchange. Contact the Education Coordinator of Point Reyes National Seashore for more information.
2. Formalize the results as a mock "Scientific Paper". Include title, abstract, introduction, method, results, discussion, acknowledgements, and references.

How Are Decisions Made for Elephant Seals?



Post-Visit Lesson Plan

Students will role-play various interest groups involved in making decisions for elephant seals. Through cooperative discussion and reflection on the Marine Mammal Protection Act, students will create a management plan for the future of Limantour Beach in Point Reyes National Seashore.

Time required: 2 hours

Location: classroom

Suggested group size: entire class

Subject(s): science

Concept(s) covered: compromise, negotiations, interest groups

Written by: Erin Blackwood, Marine Mammal Center

Last updated: 12/03/00

Student Outcomes

At the end of this activity, the students will be able to:

- Represent a specific opinion on a complex issue.
- Negotiate a group management decision.

California Science Standard Links (grades 6 – 8)

This activity is linked to the California Science Standards in the following areas:

- 6th grade 5b- organisms and the physical environment
- 5e- the number and type of organisms an ecosystem can support depends on the resources available and abiotic factors
- 7th grade 3e- extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient for its survival

National Science Standard Links (grades 5 – 8)

This activity is linked to the National Science Standards in the following area:

- Content Standard F – Populations, Resources, and Environments: when an area becomes overpopulated, the environment will become degraded due to the increased use of resources; causes of environmental

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degradation and resource depletion vary from region to region and from country to country. Risks and benefits: Important personal and social decisions are made based on perceptions of benefits and risks.

Materials

To be photocopied from this guide:

- **Elephant Seal Interest Groups** activity sheet
- **Marine Mammal Protection Act** activity sheet
- **Proposed Management Plan for Limantour Beach** activity sheet

Vocabulary

Generated by student inquiry

Procedures

1. Present scenario

It is the year 2020. Within Point Reyes National Seashore lies Limantour Beach. Elephant seal populations have been steadily growing. Negative interactions between elephant seals, humans, dogs, and horses have been increasing. The National Park Service Park Rangers will be holding a town meeting to hear different viewpoints expressed and create a management plan for the area.

2. Designate interest groups

Based on the scenario described above, ask students who will want to voice their opinions at the town meeting. Students can use the **Elephant Seal Newspaper** to generate a list of interest groups. Record their ideas on the blackboard. These responses should be compared to those listed on the Elephant Seal Interest Groups activity sheet (such as Bird Watchers, Park Rangers, Western Snowy Plovers). If students have an idea for a group not listed on the activity sheet, form another group to let them represent that opinion.

3. Form student teams

Group students, or allow students to choose which viewpoint they will represent. Each team should receive either the entire **Elephant Seal Interest Groups** activity sheet or only the paragraph relevant to their position. Teams will nominate a spokesperson and prepare a 3-minute presentation of their viewpoint. The Park Ranger group will receive the entire sheet and devise at least three questions they would like to ask each interest group. Students should record any vocabulary needing clarification.

4. Town meeting

Have Park Rangers sit in front of classroom. Each interest group will have 3-minutes to present their case. Park Rangers can ask three clarifying questions. No decision is made at this point.



5. Form new student groups for collaborative decisions

Create several small groups composed of several interest group types. Hand out the **Marine Mammal Protection Act**. Assign each group a set amount of time to come up with a sample management plan for Limantour Beach with this Act and their various roles in mind.

6. Present ideas

Each group will present their idea to manage multiple groups at Limantour Beach. Allow time for discussion of these scenarios. Who benefits most? Who benefits least? Park Rangers and various groups decide on one management plan.

Extension Ideas

Identify a scenario in your immediate community with complexity and several interest groups. Students can interview community members, write a class viewpoint, and take action in some form expressing their opinion.



Elephant Seal Interest Groups

Bird Watchers

We visit Limantour Beach to watch and enjoy the many types of birds found on this beach. The increase in elephant seals has made it an attraction for tourists. These tourists scare the birds away and make it hard to find a parking spot. Sometimes the beach can be closed if too many elephant seals are hauled out.

Tourists

Let the elephant seals stay, but allow us to get a closer look. The National Park Service should make the parking lot bigger, sell more types of food at the café, and provide viewing areas in the shade.

Dune Vegetation

The increase in elephant seals has meant we get more and more trampled every year. If it isn't the elephant seals trampling us, it's the humans trying to get close any way they can. Some of us are endangered, threatened, or rare. When we're gone, we are gone forever.

Elephant Seals

It isn't the easiest thing to find a place to haul out on the California coast. Humans have developed most of the sandy coastal areas in this state. Limantour Beach is just right for us if dogs, people, and horses are kept away from our space. Let elephant seals come first in management decisions in some natural areas, we don't stand a chance in other places.

Dog Owners

The beach is the perfect place to let my dog run wild. I can keep him in view and bird chasing is great "doggie entertainment". Now that the elephant seals have been "hogging" the beach, there is pressure to keep my dogs out of the area.

Docents

Elephant Seals belong here. As a docent, I can help visitors see and understand these amazing seals. While I'm out here, I can also collect field data for resource management.

Law Enforcers

We have signs all over the place letting visitors know when they get too close to the seals. Most people respect the signs, but some ignore them and get too close. I've seen a pup crushed under another seal because a human approached too closely.

Wildlife Photographers

It's great there are more elephant seals in the area, but can't we just get a little closer? We don't want everyone to get close, just the professional photographers.



Activity Sheet

Name _____ Date _____

Western Snowy Plover

I build my nest on the ground, in the beach dunes, and I am afraid for the future of all western snowy plovers. There are many reasons to be afraid, but sometimes visitors take shortcuts across the dunes to view elephant seals and my eggs are crushed. I am an endangered species trying to survive.

Marine Mammal Biologist

Elephant Seals are fascinating. We almost lost them forever. At several points in time they were considered extinct. There is so much to learn about them and how they fit into the ecosystem. The more we know about them, the more we can protect them and everything in their habitat.

Park Rangers

Elephant seals have the right to use this beach. People also have the right to use this beach and view elephant seals. But, if there are no more elephant seals here, some people may not want to come anymore. We must balance this use with resource protection as our highest priority. We also can't ignore federal laws that were written to protect Marine Mammals.



Marine Mammal Protection Act

Read the following information before creating your Proposed Management Plan for Limantour Beach in the year 2020.

The Marine Mammal Protection Act (MMPA) was passed by Congress in 1972 and was a milestone for marine protection. The MMPA makes it illegal for anyone to kill, injure, or bother any and all species of marine mammals; these animals include dolphins, seals, sea otters, whales, and polar bears.

The Marine Mammal Protection Act also makes it illegal to import marine mammals or related products to the United States. Exceptions to the Marine Mammal Protection Act include subsistence hunting and incidental catching by commercial fishermen.

Alaskan Aleuts, Indians, and Eskimos who reside in Alaska are permitted to take marine mammals for subsistence purposes or for use in the manufacture and sale of native handcrafts.

The Secretaries of Interior and Commerce may grant permits for importation of marine mammals for scientific research or public display purposes.

Two federal agencies are in charge of administration of the Marine Mammal Protection Act. The National Marine Fisheries Service (NMFS) under the Commerce Department is responsible for whales, dolphins, and seals. The Fish and Wildlife Service under the Department of Interior is responsible for all other marine mammals.

It is illegal to:

- Take any marine mammal on the high seas or in waters or on lands under U.S. jurisdiction.
- Import any marine mammal or marine mammal product into the United States.
- Use any port or harbor under U.S. jurisdiction for any purpose connected with unlawful taking or importation of any marine mammal.
- Possess any unlawfully taken marine mammal, including parts and products.
- Transport, purchase, sell, or offer to purchase or sell any marine mammal, including parts and products.

It is also illegal to harass marine mammals:

- There are two levels of harassment.

Level A Harassment is defined as any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal or marine mammal in the wild.

Level B Harassment is defined as harassment having the potential to disturb a marine mammal or marine mammal in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.



Name _____ Date _____

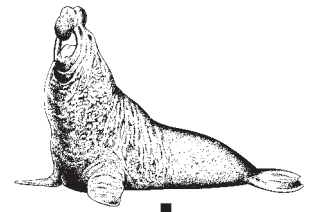
Proposed Management Plan for Limantour Beach

Based on the opinions voiced by various interest groups and your understanding of the Marine Mammal Protection Act, create a management plan for Point Reyes National Seashore.

Consider the following:

- What are you trying to protect?
- How are you going to protect it?
- What will need to be done for others to understand your decisions?

What Happens at the Marine Mammal Center?



Students tour the Marine Mammal Center's rehabilitation hospital to view elephant seal and sea lion patients. Upon returning to class, students can participate in a discussion revolving around human relationships to elephant seal survival. As a follow-up activity, students can take individual or class action to increase elephant seal survival.

Time required: one hour and travel time

Location: Golden Gate National Recreation Area/Marin Headlands

Suggested group size: 30 students

Subject(s): science

Concept(s) covered: rehabilitation

Written by: Erin Blackwood, Marine Mammal Center

Last updated: 12/11/00

Post-Visit Lesson Plan

Student Outcomes

At the end of this activity, the students will be able to:

- Examine human impacts on elephant seal survival.

National Science Standard Links (grades 5 – 8)

This activity is linked to the National Science Standards in the following areas:

- Content Standard C – Structure and function in living systems; Regulation and behavior; Populations and ecosystems; Diversity and adaptations of organisms.
- Content Standard E – Science and technology in society
- Content Standard F – Risks and benefits: important personal and social decisions are made based on perceptions of benefits and risks

Vocabulary

Conservation, rehabilitate

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Procedures

1. Arrange visit

Read through the Teacher Information Sheet provided at the end of this lesson to arrange your visit.

2. Prepare students for visit

Have students write down some or all of the following focus questions to use on their visit. Explain the role of the Marine Mammal Center and what students can expect on their field trip.

- Why are these animals here?
- Where did they come from?
- How is this environment different from their wild habitat?
- How is their behavior different from that in their natural habitat?
- How can humans learn from rehabilitating elephant seals?
- How does rehabilitating elephant seals help their conservation?
- How might rehabilitating elephant seals hinder their conservation?
- What are some other ways to help elephant seals and other marine organisms?

3. Visit

Have students bring a notebook and their focus questions to answer.

4. Back in Class: Debate

Back in the class, have students form teams to debate the pros and cons of rehabilitation to conserve marine mammal populations. Consider the following arguments:

Pro

- Humans have caused harm and are still causing harm to marine mammals. Rehabilitation can “make up” for this.
- An individual animal has intrinsic value.

Con

- Rehabilitation may interfere with natural selection, releasing unfit animals into the population.
- Humans should not interfere with wild animals.

5. Stewardship project

Use the follow-up lesson plan **How do I Choose and Complete the Best Stewardship Project?** Students write a stewardship action plan and complete a stewardship project that best fits their skills.

Visiting the Marine Mammal Center



Teacher Information

Who to contact:

Marin Headlands
1065 Fort Cronkhite
Sausalito, CA 94965
Phone: (415) 289-7330
Fax: (415) 289-7753
www.tmmc.org

Mission Statement for Marine Mammal Center:

"We recognize our interdependence with marine mammals, their importance as sentinels of the ocean environment, and our responsibility to use our awareness, compassion and intelligence to ensure their survival and the conservation of their habitat."

Education Programs Options:

Call for fee and logistics information

Pinniped Patients

Visit the Marine Mammal Center's hospital, which works with up to 800 marine mammals each year. The students will observe and learn about our seal and sea lion (pinniped) patients. We will explore the natural history and conservation of both pinnipeds and sea otters. Students study and handle tanned pelts and bones.

Best season: March – November

In Our Marine Science Classroom

Enhance your visit to the hospital by bringing your students to our classroom for a more in-depth study of whales, otters, or to explore other topics and see more marine mammal specimens. Topics for classroom presentations are the same as those for the Whale Bus, listed below. Classroom program does not automatically include a visit to the hospital; that must be scheduled separately.

Best season: all year

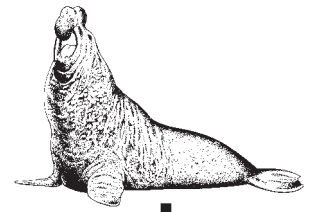
The Whale Bus Outreach Programs

Let the Marine Mammal Center bring the world of marine mammals to your group. Topics range from the natural history of pinnipeds, otters, or whales to the work of the Marine Mammal Center and marine science careers. Hands-on activities and/or marine mammal specimens, such as bones, pelts, and baleen are included in each program.

Best season: all year



How Do I Choose and Complete the Best Stewardship Project?



Post-Visit Lesson Plan

The final lesson for this unit synthesizes all previous learning experiences. Students have gained an understanding of elephant seals, ocean ecology and some of the threats to their sustainability. Now it's time to take action in making beaches and oceans healthier places for the variety of living things that depend on them, from microscopic plankton to humans.

Time required: time varies

Location: classroom, community, or Point Reyes National Seashore

Suggested group size: entire class

Subject(s): biology, art, computer skills, community service

Concept(s) covered: stewardship, educating others, environmental responsibility

Written by: Lynne Dominy and Christie Denzel Anastasia,
National Park Service

Last updated: 11/26/00

Student Outcomes

At the end of this activity, the students will be able to:

- Synthesize all other pre-visit, on-site, and post-visit lessons from this unit.
- Plan and implement an environmental stewardship activity to benefit the ecosystem they live in and depend upon.

National Science Standard Links

As a result of this activity, all students in grades 6-8 should develop:

- Content Standard F – Science in Personal and Social Perspectives; Populations, Resources, and Environments.

Materials

To be provided by the teacher:

- Varies by project, see teacher information sheet **Discovering Northern Elephant Seals: Environmental Stewardship Projects**

Vocabulary

stewardship

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Procedures

1. Decide on lesson approach based on time limitations

Review the teacher information sheet **Discovering Northern Elephant Seals: Environmental Stewardship Projects** following this lesson. This sheet explores the range of Stewardship Projects your class can complete according to time constraints. There are many possibilities ranging from short lessons to more in-depth, interdisciplinary projects that may fulfill educational standards for other subject areas.

2. Prior to any lesson, introduce concept of environmental stewardship

Begin a discussion of who has responsibilities for natural resources. There are federal agencies such as the National Park Service, United States Forest Service, state agencies such as California Fish and Game, and local organizations. Introduce the concept that organizations such as schools and individuals such as students also have responsibility.

Every day we decide on an individual level what our impact will be on the environment based on our actions. It's usually positive or negative, rarely neutral.

3. Review teacher resource *Discovering Northern Elephant Seals: Environmental Stewardship Projects* for the following lesson options

- How to Positively Effect Species and Their Habitats (activity sheet)
- Create Tools to Educate Others
- Implement a Community Project
- Participate in Volunteer Programs at Point Reyes National Seashore
- Support Stewardship Organizations and Be an Advocate for Your Beliefs

4. Assist with evaluation of *Creating Coastal Stewardship through Science*

Please share your project ideas and results! If you develop a website, host a "Coastal Stewardship Day", or participate in a beach clean-up, let us know by sending photos, stories, or student materials. Call (415) 464-5139 to leave a message with the Education Coordinator of Point Reyes National Seashore.

Discovering Northern Elephant Seals Environmental Stewardship Projects



Teacher Information

How to Positively Effect Species and Their Habitat

One to two lessons

Students use the **How to Positively Effect Species and Their Habitats** activity sheet to learn more about seals, sea lions, and their habitats. Based on that research, students devise action plans for which they assume responsibility for contributing toward a healthy habitat.

Create Tools to Educate Others

Arranged in order of possible time commitment, shortest to longest

Lead a class discussion to brainstorm ways students can educate others. Use the list below to help students generate ideas. Once there are a number of ideas, decide upon which project can be completed within a designated timeframe. The next step is to have students create a “plan of action”. What are all the things that need to be done, in which order do they need to be done, who is going to do them, and what are the deadlines? How can students not only teach about the resource, but also impart stewardship values? Remind students to think about any safety issues and address these as a group.

Educational tool ideas:

- Develop a newsletter or newspaper to distribute to other students.
- Build an exhibit that is displayed for a parents’ open house.
- Paint a mural, draw posters, or create a website that encourages Ocean and Beach Stewardship.
- Interview a researcher about a restoration project. Share the answers.
- Organize a Coastal Stewardship Contest. Have students define stewardship through writing essays or creating art, poetry or music.
- Videotape your field trip and stewardship activities. Have the students narrate this video and develop a presentation for other students sharing what they have learned and accomplished.
- Create a mentoring program that enables your students to teach younger students about resources and their stewardship.

Implement a Community/School Project

Arranged in order of possible time commitment, shortest to longest

Instruct students as a homework assignment to find at least one local environmental issue being discussed among community members. Students may gain this information by looking through newspapers, talking to their parents, watching the local news, or listening to a public radio station. The next day in class, all local environmental issues should be discussed to some extent. Choose one project.



around which students may design a stewardship project. What are the possible stewardship activities that can be completed by students, and/or their parents, and communities? Follow the ideas in the procedure above to create a “plan of action”.

Community/ School Project Ideas:

- Adopt-A-Seal programs with Marine Mammal Center
- Create a green school: investigate recycling and composting facilities or water conservation. Have students write a plan about how to make your school more environmentally friendly. Have them take action and implement some of their ideas. Discuss how a green school inevitably benefits marine mammals.
- Organize a Beach Clean-Up Day.

Participate in Volunteer Programs at Point Reyes National Seashore

2 hours, full day, or regular commitment on weekly/monthly basis

Students may participate in programs such as restoration, rehabilitation, or research projects. Consult with the Volunteer Coordinator or Education Specialist for the most recent options as projects can change according to time of year and staffing availability. One example of participating in a restoration project would be to remove exotic plants from natural areas. There is also a Harbor Seal and Elephant Seal Docent program for adults who wish to volunteer with their children on weekends. To participate in these types of programs at Point Reyes National Seashore call (415) 464-5139.

Support Stewardship Organizations and Be an Advocate for Your Beliefs

One lesson to lifelong commitment

Introduce students to the concept of advocacy. Have them research and represent the missions of local and national stewardship organizations. Examples include: the National Park Service, the Marine Mammal Center, the Humane Society, the Sierra Club, the National Parks and Conservation Association, the Audubon Society. Have students write letters to their local, state and national government officials regarding stewardship issues or have them submit articles to local newspapers. Encourage students to form educated opinions and to voice them.

Name _____ Date _____



How to Positively Effect Species and Their Habitat

Choose one of the following species present at Point Reyes National Seashore to answer the questions below:

- | | |
|--|--------------------------------|
| <input type="checkbox"/> Northern fur seal | <i>Callorhinus ursinus</i> |
| <input type="checkbox"/> California sea lion | <i>Zalophus californianus</i> |
| <input type="checkbox"/> Harbor seal | <i>Phoca vitulina</i> |
| <input type="checkbox"/> Northern elephant seal | <i>Mirounga angustirostris</i> |
| <input type="checkbox"/> Stellar's (Northern) sea lion | <i>Eumetopias jubatus</i> |
| | threatened/federal |

Investigation

1. How have population numbers of this particular species changed over time?
2. What are the threats to this species as an individual?
3. What are specific threats to the habitat for this species?
4. What is the federal government doing to increase population numbers?
5. What would be different in your life if all seals and sea lions went extinct before you were born?

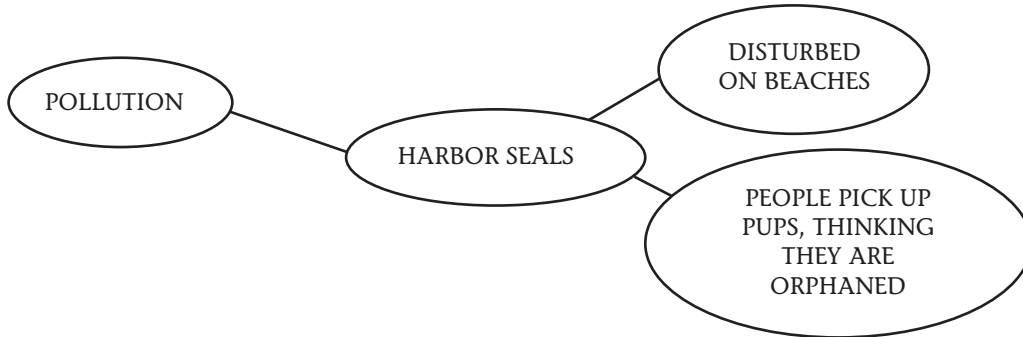


Name _____ Date _____

Problem Solving

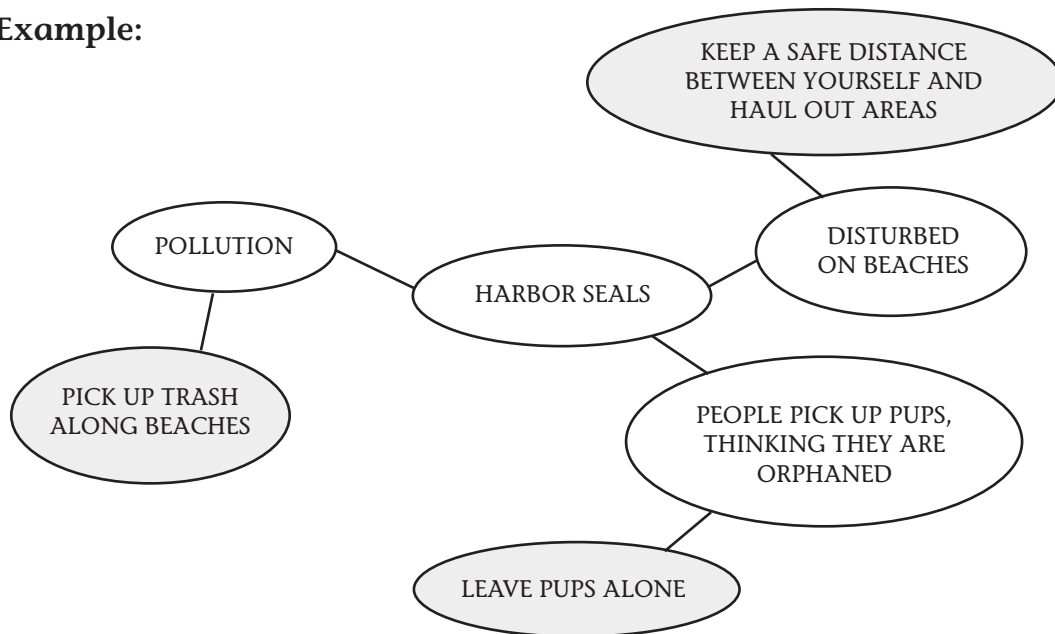
Using a blank piece of paper, you will create a “mind-map”.

Begin by writing the name of your species in the center of the paper and drawing a circle around it. Choose some of the threats to its survival and write those around the species name. Draw circles around each of the threats and connecting lines to the circle in the center. You should have something that looks like this:



Begin problem solving by thinking about actions that lessen the impact of specific threats. Write those actions in circles connected to the threat it seeks to solve.

Example:



Resolution

Review your mind-map to determine what type of actions YOU can take that will positively affect these species and/or their habitat.

Place “*” next to actions you are already doing,

Place a “1” next to actions individuals can do,

Place a “2” next to actions groups can do, and

Place a “?” next to things you believe are not within your control.

Select an option and implement your plan.